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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/955,537	09/17/2001	Manish Shah	50588/342	9811

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EXAMINER

AHN, SAM K

ART UNIT PAPER NUMBER

2637

DATE MAILED: 10/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/955,537

Applicant(s)

SHAH ET AL.

Examiner

Sam K. Ahn

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 March 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 September 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Allowable Subject Matter

1. The indicated allowability of claims 1-26 is withdrawn in view of the newly discovered reference(s) to Butler et al. USP 6,205,186 B1. Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1,4-6,10,12-13,18 and 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Butler et al. USP 6,205,186 B1 (Butler).

Regarding claims 1,10 and 18, Butler teaches an apparatus comprising: a decoder (56 in Fig.2) to decode a plurality of data streams, said decoder having a state associated with each of said plurality of data streams (note col.2, lines 20-24); and a state restoration logic to restore said decoder's state (note col.2, lines 54-57 and col.10, lines 62-66). Butler teaches decoding a first portion of a first data stream (priori, note col.7, line 9), decoding portions of other data streams (priori of the consecutive data streams as shown in Fig.4 of having initialization 102a, 102b, followed by plurality of other data streams) in said plurality of data

streams; restoring said state associated with said first data stream (note col.7, lines 24-27) and decoding a second portion of said first data stream in said plurality of data streams (assigned slot, 104b in Fig.4).

Although Butler does not explicitly teach restoring the state of the decoder upon switching from decoding one data stream to another data stream, Butler teaches the decoder receiving a priori for a data stream. Thus, each data stream is received along with a priori wherein the priori is used to restore the decoder.

Therefore, it would have been obvious to one skilled in the art at the time of the invention to analyze that the first data stream including a first priori restores the decoder to fit the decoder according to the bits specified in the first priori. Then, the decoder is restored again after receiving a second data stream including a second priori to restore the decoder to fit the decoder according to the bits specified in the second priori. Thus, the limitation of switching from decoding one data stream to another data stream may be analyzed one skilled in the art at the time of the invention by receiving a first data stream, and a second data stream, thus decoding each of the data stream for the purpose of eliminating decoder state convergence, as taught by Butler (note col.7, lines 8-13).

And further, Butler does not explicitly teach decoding portions of other data streams in said plurality of data streams.

Regarding claims 4-6,12-13 and 21-23, Butler further teaches wherein said decoder is a Viterbi decoder (56 in Fig.2) that may be described by a trellis

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diagram and survivor path data, which are the basic features of a Viterbi decoder.

3. Claims 2,3,7,9,11,14-17,19,20,24 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Butler et al. USP 6,205,186 B1 (Butler) and Kaewell, Jr. USP 6,404,828 B2 (Kaewell, cited previously).

Regarding claims 2,11 and 19, Butler teaches all subject matter claimed, as applied to claim 1,10 or 18. However, Butler does not explicitly teach wherein said state restoration logic comprises one or more memory arrays for storing said state associated with each of said plurality of data streams.

Kaewell teaches one or more memory arrays for storing state associated with each of plurality of data streams (69,73 in Fig.3B). Therefore, it would have been obvious to one skilled in the art at the time of the invention to incorporate the teaching of Kaewell by incorporating the memory arrays in the state restoration logic of Butler for the purpose of implementing a Viterbi algorithm, as taught by Kaewell (note col.6, lines 53-58). Thus, although Butler does not explicitly teach a memory array, it would have been obvious to one skilled in the art at the time of the invention that in order to properly implement the function of the Viterbi decoder (56 in Fig.2) of Butler, the memory arrays would be required, as taught by Kaewell.

Regarding claims 3 and 20, Butler in view of Kaewell teach all subject matter claimed, as applied to claim 2 or 19. Butler, as previously explained, teaches plurality of data streams (first data stream followed by a second data stream) decoded by the Viterbi decoder. Thus, at the time of the decoding process, the number of the memory array would be equivalent to the number of data stream of having one, decoding one data stream after another.

Regarding claims 7, 15 and 24, Butler in view of Kaewell teach all subject matter claimed, as applied to claim 2, 14 or 21. Kaewell further teaches wherein said one or more memory arrays are tracing decode arrays (75 in Fig.3B). And although Kaewell does not explicitly teach the tracing to be a forward tracing, it would have been obvious to one skilled in the art at the time of the invention to analyze that the forward tracing or even reverse tracing are well-known implementation performed at a Viterbi decoder. Thus, for the purpose of applying a robust Viterbi decoder, one skilled in the art would be motivated to include a forward tracing and even a reverse tracing in the Viterbi decoder.

Regarding claims 9 and 26, Butler in view of Kaewell teach all subject matter claimed, as applied to claim 2. Kaewell further teaches an accumulator buffer (69 in Fig.3B) for temporarily storing accumulator values associated with each of said plurality of data streams, said accumulator values representing path metric values and being readable from said accumulator buffer (note col.6, lines 53-58).

And although Kaewell does not explicitly teach wherein said accumulator buffer is to restore said state, it would have been obvious to one skilled in the art at the time of the invention to analyze through the teaching Kaewell, as previously explained of Butler incorporating the memory array, may as well further store the metric values, as also taught by Kaewell (note acol.6, lines 53-58) for the purpose of updating the trellis levels and thus implement a robust Viterbi decoding algorithm.

Regarding claim 14, Butler teaches state restoration logic (note col.2, lines 54-57 and col.10, lines 62-66) for selecting various state metrics (note col.7, line 8-15) associated with a particular data stream upon receiving a signal indicating a switch to decoding said particular data stream.

However, Butler does not explicitly teach a plurality of data arrays for storing survivor path data for a plurality of data streams and a buffer for storing a plurality of path metric values associated with each of said plurality of data streams; and also selecting a particular data array during switching.

Kaewell teaches a plurality of data arrays (69 in Fig.3B) for storing survivor path data for a plurality of data streams and a buffer (73) for storing a plurality of path metric values associated with each of said plurality of data streams.

Therefore, it would have been obvious to one skilled in the art at the time of the invention to incorporate the teaching of Kaewell by incorporating the data arrays and buffer for the purpose of implementing a Viterbi algorithm, as taught by

Kaewell (note col.6, lines 53-58). Thus, although Butler does not explicitly teach a memory array, it would have been obvious to one skilled in the art at the time of the invention that in order to properly implement the function of the Viterbi decoder (56 in Fig.2) of Butler, the data arrays and buffer would be required, as taught by Kaewell. And furthermore, switching to decoding said particular data stream would also depend on the selecting a particular data array, since the data array contains sets of data in order to perform Viterbi algorithm, as taught by Kaewell (note col.6, lines 53-58).

Regarding claim 16, Butler further teaches wherein said decoder is a Viterbi decoder (56 in Fig.2) that may be described by a trellis diagram and survivor path data, which are the basic features of a Viterbi decoder.

Regarding claim 17, Butler further teaches wherein said indication of a switch from decoding one stream to another occurs are regular periodic intervals (see T_p in Fig.4 wherein the priori are received with the interval of T_p).

4. Claims 8 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Butler et al. USP 6,205,186 B1 (Butler) and Kaewell, Jr. USP 6,404,828 B2 (Kaewell, cited previously) and Wiedeman USP 6,654,357 B1.

Regarding claims 8 and 25, Butler in view of Kaewell teach all subject matter claimed, as applied to claim 1 or 20. Butler nor Kaewell, however, is silent

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regarding said data streams comprising multimedia data transmitted from a satellite transponder.

Wiedeman teaches satellite transponder (12) transmitting data streams to a CDMA system (52 in Fig.2). Therefore, it would have been obvious to one skilled in the art at the time of the invention to incorporate the teaching of Wiedeman in the system of Butler by receiving satellite signals for the purpose of increasing the coverage of the system by receiving signals from the satellite transponder. And furthermore, the signal may further be a multimedia data wherein the data may carry ring tones, pictures or music transmitted via the satellite transponder.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sam Ahn whose telephone number is (571) 272-3044. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on (571) 272-2988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Sam K. Ahn
9/28/05

TEMESGHEN GHEBRETINSAE
PRIMARY EXAMINER